

According to the dates furnished, the *Charleston* was apparently some distance south of the center, during the period from 8 p. m. on the 10th to 2 a. m. on the 11th, when westerly winds of over 70 miles an hour prevailed and waves of from 50 to 60 feet in height did considerable damage to the ship. The lowest barometer 29.19 inches occurred from 8 to 9 p. m. on the 10th, the pressure then rising slowly, and the wind gradually diminishing in force, although moderate northwesterly gales prevailing until noon of February 11.

A letter was also received from the commanding officer of the U. S. S. *Antigone* that referred to the same storm. The *Antigone* was some distance north of the position of the *Charleston*, when the gale was at its height, and therefore nearer the center. Extracts from the letter are as follows:

On February 6, about noon, we passed close to the Azores and shortly after leaving the islands the barometer started to fall and the wind to increase in force from the southwest quadrant. The barometer fell until it reached 29.14 inches at 3 a. m. February 7, the wind blowing with a force of from 8 to 9, with moderate sea. At 4 a. m. the wind suddenly shifted to the northwest, the weather cleared, and the wind moderated to force 4 or 5, gradually backing around to the southwest. Barometer rose only slightly on the 7th.

On February 8 the barometer continued very low, with strong northwesterly winds, and moderated on the 9th, the barometer rising as high as 29.97 on the afternoon of the 9th. After midnight on that date it started to fall rapidly and gave signs of an approaching gale, although the barometer had been steadily low, as shown. There was no accompanying swell, nor was there much wind, which was in the southwest quadrant.

February 10, near midnight, the wind began to increase rapidly, the sea picked up materially, and the barometer fell at the rate of about one-tenth of an inch per hour, the wind coming from the west and

southwest quadrants. Between 2 and 3 a. m. on the 11th the blow seemed to be at its height. The sea was very rough, the waves being from 30 to 50 feet in height, and it became necessary to heave to with the wind on the bow, as several lifeboats had been stove in, and it was not advisable to risk shipping a sea, loaded as we were with troops. At 5 a. m. the barometer reached its lowest point, 28.53 inches, then rose slightly and remained practically stationary for two hours, the wind and sea being exceptionally heavy. At 6 p. m. the wind began to haul gradually to the westward, and later the barometer started up slowly, then moved rapidly, rising on the average at a rate of about 0.12 inch per hour up to noon, the wind and sea moderating slightly.

When the effect of the wind from the northwest began to be felt a very disagreeable, choppy cross sea was the result. This condition lasted through February 12, the wind continuing strong from the northwest quarter.

On February 11 intercepted messages were received from the steamships *Mumwood* and *Cape Henry*, which gave the height of the barometer at this position. These positions and barometer readings, together with that of the *Antigone* at the same time, follow:

February 11, 3 hours, 42 minutes G. M. T., S. S. *Mumwood* in latitude 34-14 N., longitude 52-09 W., barometer, 29.47 inches.

February 11, 3 hours, 34 minutes G. M. T., S. S. *Cape Henry* in latitude 36-30 N., longitude 50-00 N., barometer 29.26 inches.

February 11, 3 hours, 49 minutes G. M. T., U. S. S. *Antigone* in latitude 37-21, longitude 53-45, barometer 29.18 inches.

The lowest barometer was experienced by the *Antigone* in latitude 27-15 N., longitude 55 W., 20 hours, 46 minutes G. M. T., barometer 28.53 inches.

It is thought that the center of this storm passed very close to the *Antigone*, and to the northward of us, between 2 and 5 a. m., February 11. During that time the barometer reached the lowest point and the wind blew with hurricane force, seas very high though regular, and all around the ship there was a heavy bank of clouds with continuous lightning. Directly overhead the sky was clear nearly all the time, the stars being clearly seen. In other words, the ship seemed to be in a pocket surrounded by heavy clouds, the limits of the horizon being only a mile or two from the ship, as could be seen during the flashes of lightning.

#### NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

##### BRITISH ISLES.

The predominant character of the weather over the British Isles since the commencement of the year has been rainy and dull \* \* \*. February rainfall was in excess of the average in the south and east of England and deficient elsewhere. The general rainfall expressed as a percentage of the average was: England and Wales, 103; Scotland, 38; Ireland, 69; British Isles, 71. The aggregate duration of bright sunshine \* \* \* has been deficient in all districts of the British Isles except in Ireland and in Scotland north; in the southeast district of England the deficiency amounts to 0.6 hour

daily for the first nine weeks [of the year], or, in all, 38 hours. At Kew Observatory the sunshine in February was little more than one-half of the average, and at Cambridge it was less than one-half of the normal. In mid February the weather was cold enough for skating in nearly all districts. The month as a whole was cold, the mean temperature was 35° 6 being 4° 1 below the average, and 2° 2 lower than in January.—From *Nature*, London, Mar. 13, 1919, pp. 30-31; and Symons's *Met'l. Mag.*, Mar., 1919, p. 21.

#### DETAILS OF THE WEATHER IN THE UNITED STATES, FEBRUARY, 1919.

##### CYCLONES AND ANTICYCLONES.

By ALFRED J. HENRY, Meteorologist.

*Cyclones*.—Eleven cyclones have been plotted on Chart III, distributed according to place of origin or first appearance on the daily weather maps as follows: North Pacific 6, South Pacific 2, and Alberta 3. The North Pacific cyclone which appeared off the Washington coast on the morning of the 10th moved thence south-eastward across the Plateau and Rocky Mountain regions, pressure at the center, diminishing until on the morning of the 13th when it reached the low value of 28.90 inches at Kansas City, Mo. At this time the surface air over practically the entire area of the United States east of the Rocky Mountains was in cyclonic circulation about the center of the whirl. As the cyclone moved eastward several minor cyclonic systems developed within the greater primary cyclone.

The latter passed off to sea over Newfoundland on the 17th.

*Anticyclones*.—Although pressure was below normal over Alaska and the Canadian Northwest, 6 HIGHS have been plotted as originating in Alberta, 1 in the Hudson Bay region, and 3 apparently moved into the continent from the Pacific. The HIGHS presented no unusual features.

##### THE WEATHER ELEMENTS.

By P. C. DAY, Climatologist and Chief of Division.

[Dated Weather Bureau, Washington, Apr. 1, 1919.]

##### PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada and the prevailing direction of the winds for February, 1919, are graphi-